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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,412	03/17/2004	Thomas Kattwinkel	1434.104.101/IFT998US	3845

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EXAMINER
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BARAN, MARY C

ART UNIT	PAPER NUMBER
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2857

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/802,412

Applicant(s)

KATTWINKEL, THOMAS

Examiner

Mary Kate B. Baran

Art Unit

2857

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14, 16-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14, 16-24 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. The action is responsive to the Amendment filed on 27 December 2005. Claims 1-14, 16-24 and 26 are pending. Claims 1, 16, 22 and 26 are amended. Claims 15-25 are cancelled.
2. The amendments filed 27 December 2005 are sufficient to overcome the prior objections to the drawings.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9-14, 19 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Nakayama et al. (U.S. Patent No. 6,163,135) (hereinafter Nakayama).

Referring to claims 1 and 22, Hala teaches a method for detecting an operating state or a change in an operating state in a system in which at least one analog signal indicating the operating state is present (see Hala, column 1 lines 13-20), comprising: sampling the analog signal or a signal dependent on the analog signal for providing a sampling signal (see Hala, column 9 lines 44-51); generating a transformation signal

representing a spectral distribution from a number of signal values of the sampling signal (see Hala, column 9 lines 53-63); and comparing the transformation signal with at least one reference signal representing a spectral distribution (see Hala, column 10 lines 1-7), but does not teach a motor having connecting terminals for the application of a supply voltage, with a voltage present between the connecting terminals being an analog signal indicating the operating state of the motor.

Nakayama teaches a motor having connecting terminals for the application of a supply voltage, with a voltage present between the connecting terminals being an analog signal indicating the operating state of the motor (see Nakayama, column 5 lines 13-39).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala to include the teachings of Nakayama because detecting a voltage and determining an operating state of the motor would have allowed the skilled artisan to control the motor generators in accordance with the determined operating condition (see Nakayama, column 5 lines 35-39 and lines 47-51).

Referring to claims 2 and 23, Hala teaches that the at least one reference signal has been generated from an analog reference signal representing an operating state to be detected (see Hala, column 10 line 63 – column 11 line 10).

Referring to claims 3 and 24, Hala teaches that the at least one reference signal is a transformation signal generated on the basis of previous samples (see Hala, column 10 lines 1-7).

Referring to claims 4 and 5, Hala teaches that the transformation signal and the reference signal are discrete Fourier transforms and that the discrete Fourier transforms are generated by a fast Fourier transform (see Hala, column 11 lines 29-34).

Referring to claim 6, Hala teaches that the sampling signal is band-limited before the transformation signal is generated (see Hala, column 19 lines 31-45).

Referring to claim 7, Hala teaches that the transformation signal is compared with a plurality of reference signals (see Hala, column 11 lines 34-43).

Referring to claim 9, Hala teaches that the magnitudes of the discrete Fourier transforms of the sampling signal and of the at least one reference signal are compared with one another (see Hala, column 12 lines 14-24).

Referring to claim 10, Hala teaches that a state represented by the at least one reference signal is assumed to be present if the sum of the magnitudes of the differences of the individual spectral components of the discrete Fourier transforms of

the sampling signal and of the at least one reference signal is less than a reference value (see Hala, column 12 line 54 – column 13 line 13).

Referring to claim 11, Hala teaches that the phases of the Fourier transforms of the sampling signal and of the reference signal are also compared with one another (see Hala, column 12 lines 14-24).

Referring to claim 12, Hala teaches that a sampling frequency is set depending on a determined period duration of the analog signal such that the number of samples determined per period of the signal corresponds to a predetermined number (see Hala, column 11 line 64 – column 12 line 6).

Referring to claim 13, Hala teaches that the period duration is determined by a comparison of the analog signal with a predetermined threshold value (see Hala, column 14 line 57 – column 15 line 2).

Referring to claim 14, Hala teaches that the threshold value is generated by an averaging of the analog signal (see Hala, column 15 line 59 – column 16 line 8).

Referring to claim 19, Hala teaches that 128 samples of the sampling signal are used to form the transformation signal (see Hala, column 11 line 64 – column 12 line 6).

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Nakayama et al. (U.S. Patent No. 6,163,135) (hereinafter Nakayama) and in further view of Fukuda et al. (U.S. Patent No. 5,960,373) (hereinafter Fukuda).

Referring to claim 8, Hala and Nakayama teach all the features of the claimed invention except that the samples used to form the transformation signal are subjected to a weighting before the formation of the transformation signal and wherein weighting at least two of the samples are weighted differently.

Fukuda teaches that the samples used to form the transformation signal are subjected to a weighting before the formation of the transformation signal and wherein weighting at least two of the samples are weighted differently (see Fukuda, column 14 lines 21-38).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Nakayama to include the teachings of Fukuda because weighting the signal would have allowed the skilled artisan to accurately estimate the frequency (see Fukuda, column 14 lines 39-41).

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Nakayama et al. (U.S. Patent No. 6,163,135) (hereinafter Nakayama) and in further view of Smith et al. (U.S. Patent No. 5,523,701) (hereinafter Smith).

Referring to claim 16, Hala and Nakayama teach all the features of the claimed invention except subjecting the voltage to a low-pass filtering and the transformation signal is formed from the signal resulting from the low-pass filtering.

Smith teaches subjecting the voltage to a low-pass filtering and the transformation signal is formed from the signal resulting from the low-pass filtering (see Smith, Figure 2).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Nakayama to include the teachings of Smith because using a low-pass filter to filter the signal would have allowed the skilled artisan to obtain a useable, high-fidelity level for the signal of interest while rejecting other undesirable signals (see Smith, column 2 lines 63-67).

6. Claims 17, 20 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Nakayama et al. (U.S. Patent No. 6,163,135) (hereinafter Nakayama) and in further view of Naito et al. (U.S. Patent No. 6,092,028) (hereinafter Naito).

Referring to claims 17 and 26, Hala and Nakayama teach all the features of the claimed invention except that a voltage is determined at both connecting terminals with respect to a reference-ground potential and the voltages determined are compared with one another in order to determine a direction of rotation of the motor.

Naito teaches that that a voltage is determined at both connecting terminals with respect to a reference-ground potential and the voltages determined are compared with



one another in order to determine a direction of rotation of the motor (see Naito, column 13 lines 7-18).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Nakayama to include the teachings of Naito because determining a direction of rotation would have allowed the skilled artisan to determine if the vehicle is approaching or retreating from an object to prevent collision.

Referring to claim 20, Hala and Nakayama teach all the features of the claimed invention except determining the operating state of an occupant protection system in a motor vehicle, the analog signal being a signal provided by a sensor.

Naito teaches determining the operating state of an occupant protection system in a motor vehicle, the analog signal being a signal provided by a sensor (see Naito, column 13 lines 44-51).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Nakayama to include the teachings of Naito because determining the state of a protection system would have allowed the skilled artisan to ensure that the system was working properly.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hala et al. (U.S. Patent No. 6,507,804) (hereinafter Hala) in view of Nakayama et al. (U.S. Patent No. 6,163,135) (hereinafter Nakayama) and in further view of Tamura (U.S. Patent No. 6,301,530).

Referring to claim 21, Hala and Nakayama teach all the features of the claimed invention except that the sensor is a pressure sensor.

Tamura teaches that the sensor is a pressure sensor (see Tamura, column 11 line 62 – column 12 line 2).

It would have been obvious at the time the invention was made to one of ordinary skill in the art to modify Hala and Nakayama to include the teachings of Tamura because a pressure sensor would have allowed the skilled artisan to control the speed of the vehicle (see Tamura, column 12 lines 3-9).

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1-14, 16-24 and 26 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that Smith does not teach "a DC motor having connecting terminals for the application of a supply voltage, with a voltage present between the connecting terminals being an analog signal indicating the operating state of the motor"; however, this limitation is now met by Nakayama. Nakayama teaches a voltage sensor for detecting the voltage which is then used to determine the operating state of the motor (see Nakayama, column 5 lines 13-39).

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary Kate B. Baran whose telephone number is (571)

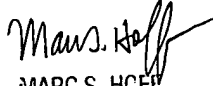
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272-2211. The examiner can normally be reached on Monday - Friday from 9:00 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc S. Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

25 February 2006

  
MARC S. HOFF  
SUPERVISORY PATENT EXAMINER  
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